

KASNEB

DICT LEVEL II

PROGRAMMING CONCEPTS

TUESDAY: 24 May 2016.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question.

ALL programs written should be in Visual Basic programming language.

QUESTION ONE

(a) Define the following terms as used in programming:

- (i) Flowchart. (2 marks)
- (ii) Algorithm. (2 marks)
- (iii) Procedure. (2 marks)
- (iv) Function. (2 marks)

(b) (i) Write the output of the following Visual Basic code after execution:

```
Dim Boy as String = "Jack"  
Dim Girl as String = "Jill"  
txtBox.Text = Boy & "and" & "Girl" & "went up the hill".
```

 (2 marks)

(ii) Rewrite the code below using a logical operator.

```
If (a < b) Then  
    If (b <= c) Then  
        txt.Output.Text = b & "is between" & a & "and" & C  
    EndIf  
EndIf
```

 (3 marks)

(c) Explain the purpose of using "OPTION EXPLICIT" statement in Visual Basic programming. (3 marks)

(d) The price of an air ticket to a certain destination is Sh.100,000. However, students receive a discount of 20% on the price.

Using the above information, draw a flowchart for a program to compute the price of the air ticket. (4 marks)

(Total: 20 marks)

QUESTION TWO

(a) Testing is a critical phase in software development.

Required:

- (i) Define the term "software testing". (2 marks)
 - (ii) Differentiate between "black box" testing and "white box" testing. (6 marks)
- (b) Describe four activities that could be performed in the design stage of software development. (4 marks)
- (c) Citing an example in each case, identify four generations of programming languages. (4 marks)
- (d) Write a code on a Form1_Load() event which would effect the following changes on the properties of the "Form1" object whenever the program is executed.

```
Form caption = "My new form outlook".  
Form colour = Brown  
Form size = 350 by 125  
Form location = point (300,300)  
Maximise = False
```

(4 marks)

(Total: 20 marks)

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QUESTION THREE

- (a) Highlight five limitations of programming in machine language. (5 marks)
- (b) A program is required to solve simple computation as shown in the user interface below:

SIMPLE VB CALCULATOR

Enter the first number

Enter the second number

ADD **SUBTRACT** **DIVIDE** **MULTIPLY**

RESULT

CLEAR

Required:

Visual Basic functions that will be used to accomplish the following tasks:

- (i) Add first number to the second number. (3 marks)
- (ii) Subtract first number from the second number. (3 marks)
- (iii) Multiply first number with the second number. (3 marks)
- (iv) Divide first number by the second number. (3 marks)
- (v) Clear the textboxes. (3 marks)

(Total: 20 marks)

QUESTION FOUR

- (a) Citing examples of programming languages, differentiate between “structured” and “event-driven” programming approaches. (4 marks)
- (b) Enumerate two challenges associated with assembly languages. (2 marks)
- (c) The form below contains four command buttons and one label. The text entered in “label1” from property window is “lblName” with caption “DICT LEVEL II GRADUATE”. When a user clicks on command 1 (**BOLD**), command 2 (*ITALIC*), command 3 (UNDERLINE) or command 4 (**NORMAL**), the properties of lblName should change to reflect the indicated formatting.

Form1

BOLD **DICT LEVEL II GRADUATE**

ITALIC

UNDERLINE

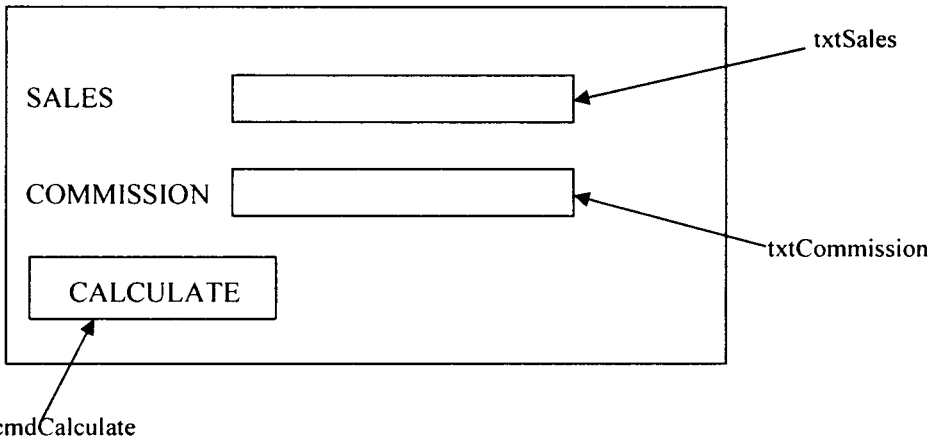
NORMAL

Required:

- (i) Write Visual Basic commands to execute the four tasks in the form above. (8 marks)
 - (ii) Assume that you have added two command buttons, LARGER and SMALLER such that when a user clicks on the first command button, the font size of lblName increases and decreases when the second button is clicked.
Write Visual Basic statements to execute the above task. (4 marks)
 - (iii) Write Visual Basic command to change the font colour and background colour of lblName to "Red" and "Green" respectively. (2 marks)
- (Total: 20 marks)**

QUESTION FIVE

- (a) Describe the purpose of the following functions as used in Visual Basic:
 - (i) DateDiff. (2 marks)
 - (ii) Abs. (2 marks)
 - (iii) Str. (2 marks)
 - (iv) Trim. (2 marks)
- (b) Distinguish between the "variable scope" and the "lifetime of a variable" as used in Visual Basic Programming. (4 marks)
- (c) The graphical user interface (GUI) shown below is used to compute the commission given to sales persons in a fast moving goods company.



Required:

A program to compute the commission, given that all sales greater than Sh.500,000 attract a commission of 10%, sales greater than Sh.200,000 but less than Sh.500,000 attract a commission of 5% and all other sales attract a commission of 1%. (8 marks)

(Total: 20 marks)

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